

The Grid “Ecosystem”

More Useful Tools and Technologies for Grid Computing¹

These pages provide quick references to original source information for the tools and technologies mentioned in this tutorial. The items mentioned in each section are representative of their categories, but this inventory is far from comprehensive.

For an overview of a particular component, refer to the relevant slides in the tutorial handout. For details about a particular component, visit the website indicated in these notes.

Most of the items mentioned here are available under open source licenses. Many of the tools listed in this reference sheet are also available as part of integrated distributions including NMI and VDT. See the “System Packaging/Distribution” section for links to these distributions.

NOTES:

Information for each software component is given in the following format:

Component Name

[Website for additional information](#)

Where to obtain the software

Authors/developers [contact address]

An asterisk mark (*) in the contact address indicates that the mailing list must be subscribed to before posting a message. Instructions for subscribing to such lists is typically found on the related website.

¹ The material in this tutorial was produced with support from the NSF Middleware Initiative (NMI, www.nsf-middleware.org) and the Department of Energy’s Office of Science. Support for the many tools and technologies described in this tutorial came from many sources, including but not limited to DARPA, the U.S. Department of Energy, the U.K. Research Councils, the European Commission, NASA, and NSF.

Security Tools

Pre-WS and WS Authentication and Authorization

<http://www.globus.org/toolkit/docs/4.0/security/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

SimpleCA

<http://www.globus.org/toolkit/docs/4.0/security/simpleca/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

MyProxy

<http://grid.ncsa.uiuc.edu/myproxy/>

Globus Toolkit 4.0, NMI-R9

NCSA [myproxy-users@ncsa.uiuc.edu*]

KX.509/KCA

http://www.citi.umich.edu/projects/kerb_pki/

NMI-R6, Download from the University of Michigan

University of Michigan Center for Information Technology Integration

PKINIT

<http://people.su.se/~lha/patches/heimdal/pkinit/>

PKINIT patch to the Heimdal Kerberos implementation

MetaCentrum Project [Daniel Kouril <kouril@ics.muni.cz>]

CAS

<http://www.globus.org/toolkit/docs/4.0/security/cas/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

VOMS

<http://edg-wp2.web.cern.ch/edg-wp2/security/voms/voms.html>

VDT, Download from the DataGrid Project

The DataGrid Project [sec-grid@infn.org]

Shibboleth

<http://shibboleth.internet2.edu/>

NMI-R9, Download from the Internet2 website

Internet2/MACE [shibboleth-users@internet2.org*]

GridShib

<http://gridshib.globus.org/>

Download from GridShib website

Globus Alliance/Internet2 [gridshib-user@globus.org*]

Monitoring/Discovery Tools

WSRF Monitoring Features

<http://www.globus.org/wsrp/>

Globus Toolkit 4.0

The Globus Alliance [info@globus.org]

Globus Index Service

<http://www.globus.org/toolkit/docs/4.0/info/index/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

Globus Trigger Service

<http://www.globus.org/toolkit/docs/4.0/info/trigger/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

WebMDS

<http://www-unix.globus.org/toolkit/docs/development/4.0-drafts/techpreview/webmids/>

Globus Toolkit 4.0

The Globus Alliance [info@globus.org]

Ganglia

<http://ganglia.sourceforge.net/>

Download from SourceForge

UC Berkeley Millenium Project [ganglia-developers@lists.sourceforge.net*]

Inca

<http://tech.teragrid.org/inca/>

NMI-R9, Download from TeraGrid

The TeraGrid Project [kericson@sdsc.edu]

MonALISA

<http://monalisa.cacr.caltech.edu/>

Virtual Data Toolkit, Download from CACR

CACR, California Institute of Technology [support@monalisa.cern.ch]

Computing/Processing Tools

GRAM

<http://www.globus.org/toolkit/docs/4.0/execution/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

Condor

<http://www.cs.wisc.edu/condor/>

VDT, NMI-R9, Download from the Condor Project
The Condor Project [condor-users@cs.wisc.edu*]

OpenPBS

<http://www.openpbs.org/>

Download from the OpenPBS website

Torque

<http://www.clusterresources.com/products/torque/>

Download from Cluster Resources, Inc.
Cluster Resources, Inc. [801-873-3400/support@clusterresources.com]

PBSPro

<http://www.pbspro.com/>

License from Altair Engineering

Sun Grid Engine / N1 Grid Engine

<http://gridengine.sunsource.net/>

<http://www.sun.com/software/gridware/>

Download Grid Engine from SunSource.net
License N1 Grid Engine from Sun Microsystems

Platform LSF

<http://www.platform.com/products/LSFfamily/>

License from Platform
Platform Computing [info@platform.com]

Platform CSF

<http://www.globus.org/toolkit/docs/4.0/contributions/csf/>

Globus Toolkit 4.0, Download from SourceForge.net
SourceForge Community [gcsf-discuss@sourceforge.net*]

Condor-G, DAGman

<http://www.cs.wisc.edu/condor/>

NMI-R6, Download from the Condor Project
The Condor Project [condor-users@cs.wisc.edu*]

MPICH-G2

<http://www.globus.org/mpi/>

NMI-R6, Download from MPICH website

Ninf-G

<http://ninf.apgrid.org/>

Download from Ninf website

National Institute of Advanced Industrial Science and Technology (Japan)

[ninf@apgrid.org]

Virtual Data System (VDS)

<http://vds.uchicago.edu/>

VDT

GriPhyN Project [vds-discuss@griphyn.org*]

Data Tools

GridFTP

<http://www.globus.org/toolkit/docs/4.0/data/gridftp/>

Globus Toolkit 4.0, NMI-R9, VDT

The Globus Alliance [info@globus.org]

globus-url-copy

<http://www.globus.org/toolkit/docs/4.0/data/gridftp/rn01re01.html>

Globus Toolkit 4.0, NMI-R9, VDT

The Globus Alliance [info@globus.org]

UberFTP

<http://dims.ncsa.uiuc.edu/set/uberftp/>

NMI-R9, Download from NCSA

NCSA [gridftp@ncsa.uiuc.edu]

GSI-SCP, GSI-SFTP

<http://grid.ncsa.uiuc.edu/ssh/>

Globus Toolkit 4.0, NMI-R9, Download from NCSA

Patch to OpenSSH by NCSA [gsi-openssh@globus.org*]

RFT

<http://www.globus.org/toolkit/docs/4.0/data/rft/>

NMI-R9, Globus Toolkit 4.0

The Globus Alliance [info@globus.org]

OGSA-DAI

<http://www.ogsadai.org.uk/>

Globus Toolkit 4.0, Download from OGSA-DAI

UK e-Science [support@ogsadai.org.uk]

MCS

<http://www.isi.edu/~deelman/MCS/>

Download from ISI

The Globus Alliance [mcs@mailman.isi.edu]

RLS

<http://www.globus.org/toolkit/docs/4.0/data/rls/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

DRS

<http://www.globus.org/toolkit/docs/4.0/techpreview/datarep/>

Globus Toolkit 4.0, NMI-R9

The Globus Alliance [info@globus.org]

DataCutter

<http://datacutter.osu.edu/>

NMI-R9, Download from Ohio State University

Collaboration tools

Sakai

<http://www.sakaiproject.org/>

Download from Sakai Project website

The Sakai Project [jxf@immagic.com]

OGCE

<http://www.collab-ogce.org/nmi/index.jsp>

Download from OGCE website

OGCE Project [discuss@ogce.org*]

Access Grid

<http://www.accessgrid.org/>

Download from Access Grid website

Argonne National Laboratory [ag-tech@mcs.anl.gov*]

System Packaging/Distribution

PACMAN

<http://physics.bu.edu/~youssef/pacman/>

Download from Boston University

Boston University [youssef@bu.edu]

Distribution: NSF Middleware Initiative (NMI)

<http://www.nsf-middleware.org/>

NSF Middleware Initiative [contact@grids-center.org]

Distribution: Virtual Data Toolkit

<http://www.cs.wisc.edu/vdt/>

GriPhyN Project [vdt-support@ivdgl.org]